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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,843	10/20/2005	Kentaro Asakura	279955US26PCT	6277

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
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ALEXANDRIA, VA 22314

EXAMINER

EGGERDING, MATTHEW THOMAS

ART UNIT	PAPER NUMBER
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1763

NOTIFICATION DATE	DELIVERY MODE
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10/05/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/553,843

Applicant(s)

ASAKURA, KENTARO

Examiner

Matthew Eggerding

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060118</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. JP 10102259 to Takizawa et al.

Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10102259 to Takizawa et al. ("Takizawa").

Takizawa teaches a process container, a gas supply system, a worktable having an upper surface on which the target substrate is placed and a lower surface which is exposed inside the process container, a lifting mechanism comprising a lifter pin, a driving unit, and a guide hole, the guide hole comprising a main hole portion which extends from the upper surface to the lower surface through the worktable, and an extended hole portion which extends into an extension sleeve which projects downward from the lower surface of the worktable to correspond to the main hole portion. (See, for example, Fig. 1, 4).

For claim 2, Takizawa teaches a length of the extended hole portion of the guide hole is larger than a half length of the main hole portion of the guide hole. (See, for example, Fig. 1).

For claim 4, Takizawa teaches an auxiliary pipe is inserted into a through hole which vertically extends through the worktable, and a portion of the auxiliary pipe, which

projects downward from the lower surface of the worktable, forms the extension sleeve, such that the main hole portion and the extended hole portion are formed in the auxiliary pipe. (See, for example, Fig. 1).

B. JP 11204430 to Mizosaki et al.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11204430 to Mizosaki et al. ("Mizosaki").

Mizosaki teaches a process container, a gas supply system, a worktable having an upper surface on which the target substrate is placed and a lower surface which is exposed inside the process container, a lifting mechanism comprising a lifter pin, a driving unit, and a guide hole, the guide hole comprising a main hole portion which extends from the upper surface to the lower surface through the worktable, and an extended hole portion which extends into an extension sleeve which projects downward from the lower surface of the worktable to correspond to the main hole portion. (See, for example, Fig. 2, 3, and 6).

For claim 2, Mizosaki teaches a length of the extended hole portion of the guide hole is larger than a half length of the main hole portion of the guide hole. (See, for example, Fig. 6).

Regarding claim 3, Mizosaki teaches an upper end of an auxiliary pipe is attached to the lower surface of the worktable, and the auxiliary pipe as a whole forms the extension sleeve, such that the extended hole portion is formed in the auxiliary pipe. (See, for example, Fig. 2, 3, and 6).

C. US 5,566,744 to Tepman

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,566,744 to Tepman ("Tepman I").

Tepman I teaches a process container, a gas supply system, a worktable having an upper surface on which the target substrate is placed and a lower surface which is exposed inside the process container, a lifting mechanism comprising a lifter pin, a driving unit, and a guide hole, the guide hole comprising a main hole portion which extends from the upper surface to the lower surface through the worktable, and an extended hole portion which extends into an extension sleeve which projects downward from the lower surface of the worktable to correspond to the main hole portion. (See, for example, Fig. 3).

For claim 2, Tepman I teaches a length of the extended hole portion of the guide hole is larger than a half length of the main hole portion of the guide hole. (See, for example, Fig. 2B, 3).

For claim 3, Tepman I teaches an upper end of an auxiliary pipe is attached to the lower surface of the worktable, and the auxiliary pipe as a whole forms the extension sleeve, such that the extended hole portion is formed in the auxiliary pipe. (See, for example, Fig. 2B, 3).

D. US 5,430,271 to Orgami et al.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,430,271 to Orgami et al. ("Orgami").

Orgami teaches a process container, a gas supply system, a worktable having an upper surface on which the target substrate is placed and a lower surface which is

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exposed inside the process container, a lifting mechanism comprising a lifter pin, a driving unit, and a guide hole, the guide hole comprising a main hole portion which extends from the upper surface to the lower surface through the worktable, and an extended hole portion which extends into an extension sleeve which projects downward from the lower surface of the worktable to correspond to the main hole portion. (See, for example, Fig. 4A).

For claim 2, Orgami teaches a length of the extended hole portion of the guide hole is larger than a half length of the main hole portion of the guide hole. (See, for example, Fig. 4A).

For claim 3, Orgami teaches an upper end of an auxiliary pipe is attached to the lower surface of the worktable, and the auxiliary pipe as a whole forms the extension sleeve, such that the extended hole portion is formed in the auxiliary pipe. (See, for example, Fig. 4A).

Claim Rejections - 35 USC § 103

A. Claim 5

Claims 5-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa as applied to claim 4 above, and further in view of US 6,887,317 to Or et al. ("Or").

Takizawa teaches a fixing member configured to abut against the lower surface of the worktable to engage with an outer surface of the auxiliary pipe. (See, for example, Fig. 1).

Takizawa does not teach a flange.

For claim 5, Or teaches a flange formed at an upper end portion of the auxiliary pipe to engage with the worktable. (See, for example, Fig. 3).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a flanged auxiliary pipe.

The suggestion/motivation would have been to secure the auxiliary pipe within the through hole. Or provides a similar teaching in which the pin is flanged to prevent it from falling through the guide hole. (See, for example, col. 3, lines 6-8).

For claim 6, Or teaches the driving unit moves the lifter pin up and down between first and second states, and the lifter pin protrudes above the upper surface of the worktable in order to assist transfer of the target substrate in the first state, and retracts below the upper surface of the worktable in order to perform the semiconductor process in the second state, and in the second state, a lower contact point at which the lifter pin comes in contact with an inner surface of the guide hole is positioned above a lower end portion. (See, for example, Fig. 3).

Regarding claim 7, Or teaches the lifter pin has an upper shaft portion and a lower shaft portion having a diameter smaller than that of the upper shaft portion, and a lower end portion of the upper shaft portion forms the lower contact point. (See, for example, Fig. 3).

For claim 8, Or teaches the lower shaft portion has a tapered shape which gradually decreases in diameter. (See, for example, Fig. 3).

For claim 9, Orr teaches the diameter of an inner surface of the guide hole gradually increases in the downward direction. (See, for example, Fig. 3). It would have been obvious to do the same to the extended hole portion of the guide hole.

For claim 10, Orr teaches an annular recess formed in an outer surface of the lifter pin. (See, for example, Fig. 2).

Regarding claim 13, Orr teaches a lower end portion of the lifter pin abuts against a driving surface of the driving unit so as to be separable therefrom. (See, for example, Fig. 3).

B. Claims 11 and 12

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa as applied to claims 1 and 4 above, and further in view of US 5,589,224 to Tepman et al. ("Tepman II")

For claims 11 and 12, none of the above references teach a longitudinal groove portion in either the outer surface of the lifter pin or the inner surface of the auxiliary pipe.

The '224 patent teaches the use of grooves to collect unwanted deposits. (See, for example, Fig. 3).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add grooves to the outer surface of the lifter pin or the inner surface of the auxiliary pipe.

The suggestion/motivation would have been it is well known in the art to use grooves to collect unwanted deposits. Hence, it would have been obvious to use

grooves on the outer surface of the lifter pin or the inner surface of the auxiliary pipe to collect deposits in the hole.

C. Claims 14 and 15

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa, Mizosaki, Tepman I, or Orgami as applied to claim 1 above, and further in view of JP 2000306851 to Horiguchi ("Horiguchi").

None of the above references teaches a worktable supported by a process container via a column or a planar contour smaller than the worktable.

Horiguchi teaches a column supporting the worktable, wherein the worktable is supported by the process container via the column, and an exhaust space which is formed below the lower surface of the worktable so as to have a planar contour smaller than the worktable and surround the column, and an exhaust system configured to exhaust the process container is connected to the exhaust space. (See, for example, Fig. 1).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a planar contour smaller than the worktable.

The suggestion/motivation would have been to make uniform the treatment gas flow from the treatment space outward in the radial direction of the treating object without making the structure complex. (See, for example, Horiguchi, Abstract).

Conclusion

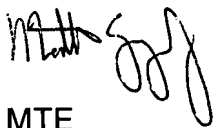
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Eggerding whose telephone number is (571)

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272-8012. The examiner can normally be reached on Monday-Friday, 8:30 AM-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


MTE


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PRIMARY EXAMINER